

Remarks/Arguments

A. Pending Claims

Claims 413-442, 444-466, and 490-492 are pending. Claims 413 and 490 have been amended. Claims 443, 726, and 730 have been cancelled without prejudice.

B. Allowable Subject Matter

Claim 443 was objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form. Claims 413 and 490 have been amended to include the features of claim 443. Applicant respectfully requests removal of the rejections to claims 413 and 490.

C. The Claims Are Not Obvious Over Pfof Pursuant to 35 U.S.C. § 103(a)

Claims 413-416, 418-430, 433-435, 439, 444, 459-461, 465, 466, 490-492, 726, and 730 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,485,690 to Pfof et al. ("Pfof"). Claims 465 and 466 have been cancelled without prejudice. Applicant submits that the claims are patentable over Pfof.

The Office Action states:

Pfof et al teach a multiple fluid sample processor comprising a multi-layered fluidic array having microtiter scale reservoirs, connecting microchannels, and sub-microtiter reaction or assay wells...where lower well plate comprises a plurality of wells used to hold reagents, solid supports, particles and/or other materials. (Office Action, page 3); and

Amended claims 413 and 490 include a combination of features including, but not limited to, the features of "wherein the vacuum apparatus comprises a vacuum chamber, and wherein the vacuum chamber comprises a breakable barrier positioned between the chamber and the cavity, and wherein the chamber applies a vacuum to the cavity when the breakable barrier is punctured." Applicant submits that Pfof does not appear to teach or suggest all the features of

the claims. Applicant respectfully requests removal of the rejections to claims 413 and 490 and the claims dependent thereon.

The Office Action included a rejection of claim 414 in view of Pfof. Claim 414 includes the feature of “wherein the system comprises a plurality of particles positioned within a plurality of cavities, and wherein at least a first part of the plurality of particles is adapted to detect at least one analyte, and wherein the analyte that is detected by the portion of the plurality of particles is not detected by second part of the plurality of particles” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 414 in combination with the features of claim 413.

The Office Action included a rejection of claim 415 in view of Pfof. Claim 444 includes the feature of “wherein the vacuum apparatus comprises a vacuum pump” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 444 in combination with the features of claim 413.

The Office Action included a rejection of claim 416 in view of Pfof. Claim 416 includes the feature of “wherein the light source comprises a light emitting diode” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 416 in combination with the features of claim 413.

The Office Action included a rejection of claim 418 in view of Pfof. Claim 418 includes the feature of “wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is positioned below a bottom surface of the supporting member, and wherein the top cover layer is positioned above the upper surface of the supporting member, and wherein the bottom layer and the top cover layer are positioned such that the particle is substantially contained within the cavity by the bottom layer and the top cover layer” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 418 in combination with the features of claim 413.

The Office Action included a rejection of claim 419 in view of Ppost. Claim 419 includes the feature of “wherein the bottom layer and the top cover layer are substantially transparent to light produced by the light source” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 419 in combination with the features of claim 413.

The Office Action included a rejection of claim 420 in view of Ppost. Claim 420 includes the feature of “wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is coupled to a bottom surface of the supporting member, and wherein the top cover layer is coupled to a top surface of the supporting member; and wherein both the bottom layer and the top cover layer are coupled to the supporting member such that the particle is substantially contained within the cavity by bottom layer and the top cover layer” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 420 in combination with the features of claim 413.

The Office Action included a rejection of claim 421 in view of Ppost. Claim 421 includes the feature of “wherein the bottom layer and the top cover layer are substantially transparent to light produced by the light source” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 421 in combination with the features of claim 413.

The Office Action included a rejection of claim 422 in view of Ppost. Claim 422 includes the feature of “wherein the sensor array further comprises a bottom layer coupled to the supporting member, and wherein the supporting member comprises silicon, and wherein the bottom layer comprises silicon nitride” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 422 in combination with the features of claim 413.

The Office Action included a rejection of claim 423 in view of Ppost. Claim 423 includes the feature of “a conduit coupled to the sensor array, wherein the conduit is configured to

conduct the fluid sample to and away from the sensor array” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 423 in combination with the features of claim 413.

The Office Action included a rejection of claim 424 in view of Pfo. Claim 424 includes the feature of “wherein the supporting member is formed from a plastic material, and wherein the sensor array further comprises a top cover layer, the top cover layer being coupled to the supporting member such that the particle is substantially contained within the cavity, and wherein the top cover layer comprises one or more openings that allow the fluid to pass through the top cover layer to the particle, and wherein both the supporting member and the top cover layer are substantially transparent to light produced by the light source” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 424 in combination with the features of claim 413.

The Office Action included a rejection of claim 425 in view of Pfo. Claim 425 includes the feature of “wherein the cavities are configured to allow the fluid to pass through the supporting member during use” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 425 in combination with the features of claim 413.

The Office Action included a rejection of claim 426 in view of Pfo. Claim 426 includes the feature of “wherein the cavity is configured to substantially contain the particle” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 426 in combination with the features of claim 413.

The Office Action included a rejection of claim 427 in view of Pfo. Claim 427 includes the feature of “a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the cover layer and the bottom layer are removable” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does

not teach or suggest the features in claim 427 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 428 in view of Pfo. Claim 428 includes the feature of "a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the cover layer and the bottom layer are removable, and wherein the cover layer and the bottom layer include openings that are substantially aligned with the cavities during use" in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 428 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 429 in view of Pfo. Claim 429 includes the feature of "a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the bottom layer is coupled to a bottom surface of the supporting member and wherein the cover layer is removable, and wherein the cover layer and the bottom layer include openings that are substantially aligned with the cavities during use" in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 429 in combination with the features of claim 429.

The Office Action included a rejection of claim 430 in view of Pfo. Claim 430 includes the feature of "a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein an opening is formed in the cover layer substantially aligned with the cavity, and wherein an opening is formed in the bottom layer substantially aligned with the cavity" in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 430 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 433 in view of Pfo. Claim 433 includes the feature of "a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the particle is positioned on the bottom layer, and wherein an

opening is formed in the cover layer substantially aligned with the cavity” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 433 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 434 in view of Pfo. Claim 434 includes the feature of “wherein the supporting member comprises a dry film photoresist material” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 434 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 435 in view of Pfo. Claim 435 includes the feature of “wherein the supporting member comprises a plurality of layers of a dry film photoresist material” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 435 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 439 in view of Pfo. Claim 439 includes the feature of “wherein the detector comprises a fluorescence detector” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 439 in combination with the features of claim 413.

The Office Action included a rejection of claim 444 in view of Pfo. Claim 444 includes the feature of “wherein the vacuum apparatus comprises a vacuum pump” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 444 in combination with the features of claim 413.

The Office Action included a rejection of claim 459 in view of Pfo. Claim 459 includes the feature of “wherein the analyte comprises phosphate functional groups, and wherein the particle is adapted to produce the signal in the presence of the phosphate functional groups” in

combination with the features of claims 413 and 446. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 459 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 460 in view of Pfof. Claim 460 includes the feature of “wherein the analyte comprises bacteria, and wherein the particle is configured to produce the signal in the presence of the bacteria” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 460 in combination with the features of claim 413.

The Office Action included a rejection of claim 461 in view of Pfof. Claim 461 includes the feature of “wherein the system comprises a plurality of particles positioned within a plurality of cavities, and wherein the plurality of particles produce a detectable pattern in the presence of the analyte” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 461 in combination with the features of claim 413.

Claims 465 and 466 include a combination of features including, but not limited to, the features of “a reagent delivery reservoir coupled to the sensor array via a conduit, wherein the fluid passes through the reagent delivery reservoir before entering the cavity, and wherein reagents enter the fluid as the fluid passes through the reagent delivery reservoir during use.”

Applicant’s Specification states:

The sensor array may also include a reagent delivery reservoir (C). The reagent delivery system is preferably coupled to the conduit upstream from the sensor array. The reagent delivery reservoir may be formed from a porous material which includes a reagent of interest. As the fluid passes through this reservoir, a portion of the reagent within the reagent delivery reservoir passes into the fluid stream. The fluid reservoir may include a porous polymer or filter paper on which the reagent is stored. Examples of reagents which may be stored within the reagent delivery reservoir include, but are not limited to, visualization agents (e.g., dye or fluorophores), co-factors, buffers, acids, bases, oxidants, and reductants (Applicant’s Specification, page 77, lines 4-11)

Pfost states:

The processor 10 includes a top plate or layer, which is also called a reagent reservoir 12...The top layer 12 is also called a feed-through plate and serves as a macro fluidic interface for the processor. The layer 12 contains a number of apertures 20 which are selectively positioned immediately above channels 22 in the middle or fluidic layer 14 and in communication with fluidic inlets in layer 14. (Pfost, column 5, lines 56-67); and

The apertures provide openings to fill the reservoirs with a plurality of reagents or other material. (Pfost, column 2, lines 52-54).

Pfost teaches a top layer, called a reagent reservoir. Pfost teaches that the top layer or reagent reservoir is a layer with several openings that allow fluids, such as reagents, to pass through the layer into channels. Pfost does not teach a reservoir. Pfost does not teach a reservoir that contains a reagent. Pfost does not appear to teach or suggest all the features of the claims. Applicant respectfully requests removal of the rejection to claims 465 and 466.

The Office Action included a rejection of claim 466 in view of Pfost. Claim 466 includes the feature of “wherein the reagent delivery reservoir comprises an indicator” in combination with the features of claims 465 and 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 466 in combination with the features of claims 465 and 413.

The Office Action included a rejection of claim 491 in view of Pfost. Claim 491 includes the feature of “wherein the system comprises a plurality of particles positioned in a plurality of cavities, and wherein at least a first part of the plurality of particles is adapted to detect at least one analyte, and wherein the analyte that is detected by the portion of the plurality of particles is not detected by second part of the plurality of particles” in combination with the features of claim 490. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 491 in combination with the features of claim 490.

The Office Action included a rejection of claim 492 in view of Pfost. Claim 492 includes the feature of “wherein the system comprises a plurality of particles positioned in the cavity” in

combination with the features of claim 490. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 492 in combination with the features of claim 490.

The Office Action included a rejection of claim 730 in view of Pfof. Claim 730 includes the feature of “a microvalve configured to control the vacuum” in combination with the features of claim 726. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 730 in combination with the features of claim 726.

D. The Claims Are Patentable Over Lavigne In View of Pfof Pursuant to 35 U.S.C. § 103(a)

Claims 413-433, 437, 439-442, 444-451, 455, 459-461, 465, 466, 490-492, 726, and 730 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lavigne et al, J. Am. Chem. Soc. 1998, 120, 6429-6430 (“Lavigne”) in view of Pfof. Claims 465 and 466 have been cancelled without prejudice. Applicant respectfully disagrees that the claims are unpatentable over Lavigne in view of Pfof.

Amended claims 413 and 490 include a combination of features including, but not limited to, the features of “wherein the vacuum apparatus comprises a vacuum chamber, and wherein the vacuum chamber comprises a breakable barrier positioned between the chamber and the cavity, and wherein the chamber applies a vacuum to the cavity when the breakable barrier is punctured.” Applicant submits that Lavigne and Pfof do not appear to teach or suggest all the features of the claims. Applicant respectfully requests removal of the rejections to claims 413 and 490.

The Office Action included a rejection of claim 414 in view of Lavigne and Pfof. Claim 414 includes the feature of “wherein the system comprises a plurality of particles positioned within a plurality of cavities, and wherein at least a first part of the plurality of particles is adapted to detect at least one analyte, and wherein the analyte that is detected by the portion of the plurality of particles is not detected by second part of the plurality of particles” in

combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 414 in combination with the features of claim 413.

The Office Action included a rejection of claim 415 in view of Lavigne and Pfof. Claim 415 includes the feature of “wherein the system comprises a plurality of particles positioned in the cavity” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 415 in combination with the features of claim 413.

The Office Action included a rejection of claim 416 in view of Lavigne and Pfof. Claim 416 includes the feature of “wherein the light source comprises a light emitting diode” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 416 in combination with the features of claim 413.

The Office Action included a rejection of claim 417 in view of Lavigne and Pfof. Claim 417 includes the feature of “wherein the light source comprises a white light source” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 417 in combination with the features of claim 413.

The Office Action included a rejection of claim 418 in view of Lavigne and Pfof. Claim 418 includes the feature of “wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is positioned below a bottom surface of the supporting member, and wherein the top cover layer is positioned above the upper surface of the supporting member, and wherein the bottom layer and the top cover layer are positioned such that the particle is substantially contained within the cavity by the bottom layer and the top cover layer” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 418 in combination with the features of claim 413.

The Office Action included a rejection of claim 419 in view of Lavigne and Pfof. Claim 419 includes the feature of “wherein the bottom layer and the top cover layer are substantially

transparent to light produced by the light source” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 419 in combination with the features of claim 413.

The Office Action included a rejection of claim 420 in view of Lavigne and Pfof. Claim 420 includes the feature of “wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is coupled to a bottom surface of the supporting member, and wherein the top cover layer is coupled to a top surface of the supporting member; and wherein both the bottom layer and the top cover layer are coupled to the supporting member such that the particle is substantially contained within the cavity by bottom layer and the top cover layer” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 420 in combination with the features of claim 413.

The Office Action included a rejection of claim 421 in view of Lavigne and Pfof. Claim 421 includes the feature of “wherein the bottom layer and the top cover layer are substantially transparent to light produced by the light source” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 421 in combination with the features of claim 413.

The Office Action included a rejection of claim 422 in view of Lavigne and Pfof. Claim 422 includes the feature of “wherein the sensor array further comprises a bottom layer coupled to the supporting member, and wherein the supporting member comprises silicon, and wherein the bottom layer comprises silicon nitride” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 422 in combination with the features of claim 413.

The Office Action included a rejection of claim 423 in view of Lavigne and Pfof. Claim 423 includes the feature of “a conduit coupled to the sensor array, wherein the conduit is configured to conduct the fluid sample to and away from the sensor array” in combination with

the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 423 in combination with the features of claim 413.

The Office Action included a rejection of claim 424 in view of Lavigne and Pfof. Claim 424 includes the feature of “wherein the supporting member is formed from a plastic material, and wherein the sensor array further comprises a top cover layer, the top cover layer being coupled to the supporting member such that the particle is substantially contained within the cavity, and wherein the top cover layer comprises one or more openings that allow the fluid to pass through the top cover layer to the particle, and wherein both the supporting member and the top cover layer are substantially transparent to light produced by the light source” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 424 in combination with the features of claim 413.

The Office Action included a rejection of claim 425 in view of Lavigne and Pfof. Claim 425 includes the feature of “wherein the cavities are configured to allow the fluid to pass through the supporting member during use” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 425 in combination with the features of claim 413.

The Office Action included a rejection of claim 426 in view of Lavigne and Pfof. Claim 426 includes the feature of “wherein the cavity is configured to substantially contain the particle” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 426 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 427 in view of Lavigne and Pfof. Claim 427 includes the feature of “a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the cover layer and the bottom layer are removable” in combination with the features of claims 413 and 425. Applicant respectfully submits that the

cited art does not teach or suggest the features in claim 427 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 428 in view of Lavigne and Pfof. Claim 428 includes the feature of “a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the cover layer and the bottom layer are removable, and wherein the cover layer and the bottom layer include openings that are substantially aligned with the cavities during use” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 428 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 429 in view of Lavigne and Pfof. Claim 429 includes the feature of “a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the bottom layer is coupled to a bottom surface of the supporting member and wherein the cover layer is removable, and wherein the cover layer and the bottom layer include openings that are substantially aligned with the cavities during use” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 429 in combination with the features of claim 413.

The Office Action included a rejection of claim 430 in view of Lavigne and Pfof. Claim 430 includes the feature of “a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein an opening is formed in the cover layer substantially aligned with the cavity, and wherein an opening is formed in the bottom layer substantially aligned with the cavity” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 430 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 431 in view of Lavigne and Pfof. Claim 431 includes the feature of “wherein the cavity is substantially tapered such that the width of the cavity narrows in a direction from a top surface of the supporting member toward a bottom

surface of the supporting member, and wherein a minimum width of the cavity is substantially less than a width of the particle” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 431 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 432 in view of Lavigne and Pfof. Claim 432 includes the feature of “wherein a width of a bottom portion of the cavity is substantially less than a width of a top portion of the cavity, and wherein the width of the bottom portion of the cavity is substantially less than a width of the particle” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 432 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 433 in view of Lavigne and Pfof. Claim 433 includes the feature of “a cover layer coupled to the supporting member and a bottom layer coupled to the supporting member, wherein the particle is positioned on the bottom layer, and wherein an opening is formed in the cover layer substantially aligned with the cavity” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 433 in combination with the features of claims 413 and 425.

The Office Action included a rejection of claim 437 in view of Lavigne and Pfof. Claim 437 includes the feature of “wherein the detector comprises a charge-coupled device” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 437 in combination with the features of claim 413.

The Office Action included a rejection of claim 439 in view of Lavigne and Pfof. Claim 439 includes the feature of “wherein the detector comprises a fluorescence detector” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 439 in combination with the features of claim 413.

The Office Action included a rejection of claim 440 in view of Lavigne and Pfof. Claim 440 includes the feature of “wherein the detector comprises a semiconductor based photodetector, and wherein the detector is coupled to the sensor array” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 440 in combination with the features of claim 413.

The Office Action included a rejection of claim 441 in view of Lavigne and Pfof. Claim 441 includes the feature of “wherein the particle ranges from about 0.05 micron to about 500 microns” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 441 in combination with the features of claim 413.

The Office Action included a rejection of claim 442 in view of Lavigne and Pfof. Claim 442 includes the feature of “wherein a volume of the particle changes when contacted with the fluid” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 442 in combination with the features of claim 413.

The Office Action included a rejection of claim 444 in view of Lavigne and Pfof. Claim 444 includes the feature of “wherein the vacuum apparatus comprises a vacuum pump” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 444 in combination with the features of claim 413.

The Office Action included a rejection of claim 445 in view of Lavigne and Pfof. Claim 445 includes the feature of “wherein the particle comprises a receptor molecule coupled to a polymeric resin” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 445 in combination with the features of claim 413.

The Office Action included a rejection of claim 446 in view of Lavigne and Pfof. Claim 446 includes the feature of “wherein the polymeric resin comprises polystyrene-polyethylene glycol-divinyl benzene” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 446 in combination with the features of claim 413.

The Office Action included a rejection of claim 447 in view of Lavigne and Pfof. Claim 447 includes the feature of “wherein the receptor molecule produces the signal in response to the pH of the fluid” in combination with the features of claims 413 and 446. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 447 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 448 in view of Lavigne and Pfof. Claim 448 includes the feature of “wherein the analyte comprises a metal ion, and wherein the receptor produces the signal in response to the presence of the metal ion” in combination with the features of claims 413 and 446. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 448 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 449 in view of Lavigne and Pfof. Claim 449 includes the feature of “wherein the analyte comprises a carbohydrate, and wherein the receptor produces a signal in response to the presence of a carbohydrate” in combination with the features of claims 413 and 446. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 449 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 450 in view of Lavigne and Pfof. Claim 450 includes the feature of “wherein the particle further comprises a first indicator and a second indicator, the first and second indicators being coupled to the receptor, wherein the interaction of the receptor with the analyte causes the first and second indicators to interact such that the signal is produced” in combination with the features of claims 413 and 446. Applicant respectfully

submits that the cited art does not teach or suggest the features in claim 450 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 451 in view of Lavigne and Pfof. Claim 451 includes the feature of “wherein the particle further comprises an indicator, wherein the indicator is associated with the receptor such that in the presence of the analyte the indicator is displaced from the receptor to produce the signal” in combination with the features of claims 413 and 446. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 451 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 455 in view of Lavigne and Pfof. Claim 455 includes the feature of “wherein the receptor comprises a synthetic receptor” in combination with the features of claims 413 and 446. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 455 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 459 in view of Lavigne and Pfof. Claim 459 includes the feature of “wherein the analyte comprises phosphate functional groups, and wherein the particle is adapted to produce the signal in the presence of the phosphate functional groups” in combination with the features of claims 413 and 446. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 459 in combination with the features of claims 413 and 446.

The Office Action included a rejection of claim 460 in view of Lavigne and Pfof. Claim 460 includes the feature of “wherein the analyte comprises bacteria, and wherein the particle produces the signal in the presence of the bacteria” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 460 in combination with the features of claim 413.

The Office Action included a rejection of claim 461 in view of Lavigne and Pfost. Claim 461 includes the feature of “wherein the system comprises a plurality of particles positioned within a plurality of cavities, and wherein the plurality of particles produce a detectable pattern in the presence of the analyte” in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 461 in combination with the features of claim 413.

Claim 465 and 466 include a combination of features including, but not limited to, the features of “a reagent delivery reservoir coupled to the sensor array via a conduit, wherein the fluid passes through the reagent delivery reservoir before entering the cavity, and wherein reagents enter the fluid as the fluid passes through the reagent delivery reservoir during use.” Applicant submits that Lavigne and Pfost do not appear to teach or suggest all the features of the claims.

For at least the reasons previously mentioned, Pfost does not appear to teach or suggest all the features of the claims. Lavigne states “[t]o mimic the cavities in which natural taste buds reside, we positioned the resin beads within micro-machined wells formed in Si/SiN wafers, thus confining the beads to individually addressable positions on a multicomponent chip.” (Lavigne, page 6429, column 2). Lavigne appears to teach using resin beads in wells. Lavigne does not appear to teach using a reagent delivery reservoir configured to deliver reagents to particles. Therefore, Lavigne and Pfost do not appear to teach or suggest a reagent delivery reservoir. Applicant respectfully requests removal of the rejections to claims 465 and 466.

The Office Action included a rejection of claim 466 in view of Lavigne and Pfost. Claim 466 includes the feature of “wherein the reagent delivery reservoir comprises an indicator” in combination with the features of claims 465 and 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 466 in combination with the features of claims 465 and 413.

The Office Action included a rejection of claim 491 in view of Lavigne and Pfof. Claim 491 includes the feature of “wherein the system comprises a plurality of particles positioned in a plurality of cavities, and wherein at least a first part of the plurality of particles is adapted to detect at least one analyte, and wherein the analyte that is detected by the portion of the plurality of particles is not detected by second part of the plurality of particles” in combination with the features of claim 490. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 491 in combination with the features of claim 490.

The Office Action included a rejection of claim 492 in view of Lavigne and Pfof. Claim 492 includes the feature of “wherein the system comprises a plurality of particles positioned in the cavity” in combination with the features of claim 490. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 492 in combination with the features of claim 490.

E. The Claims Are Patentable Over Lavigne In View of Pfof And In Further View Of Bogart Pursuant to 35 U.S.C. § 103(a)

Claim 436 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Lavigne in view of Pfof and in further view of U.S. Patent No. 5,541,057 to Bogart et al. (“Bogart”). Applicant respectfully disagrees that the claims are unpatentable over Lavigne in view of Pfof and in further view of Bogart.

The Office Action included a rejection of claim 436 in view of Lavigne, Pfof, and Bogart. Claim 436 includes the feature of “wherein an inner surface of the cavity is coated with a reflective material” in combination with the features of claims 413 and 425. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 436 in combination with the features of claims 413 and 425. Applicant respectfully requests removal of the rejection to the claims.

F. The Claims Are Patentable Over Lavigne In View of Pfof And In Further View Of Walt Pursuant to 35 U.S.C. § 103(a)

Claim 438 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Lavigne in view of Pfof and in further view of U.S. Patent No. 6,023,540 to Walt et al. ("Walt"). Applicant respectfully disagrees that the claims are unpatentable over Lavigne in view of Pfof and in further view of Walt.

The Office Action included a rejection of claim 438 in view of Lavigne, Pfof, and Walt. Claim 438 includes the feature of "wherein the detector comprises an ultraviolet detector." in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 438 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

G. The Claims Are Not Obvious Over Lavigne In View Of Pfof And In Further View of Wang Pursuant to 35 U.S.C. § 103(a)

Claims 452-458 were rejected under 35 U.S.C. § 103(a) as being obvious over Lavigne in view of Pfof and in further view of U.S. Patent No. 5,922,617 to Wang et al. ("Wang"). Applicant submits that the claims are patentable over the cited art.

The Office Action included a rejection of claim 452 in view of Lavigne, Pfof, and Wang. Claim 452 includes the feature of "wherein the receptor comprises a polynucleotide" in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 452 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

The Office Action included a rejection of claim 453 in view of Lavigne, Pfof, and Wang. Claim 452 includes the feature of "wherein the receptor comprises a peptide" in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or

suggest the features in claim 453 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

The Office Action included a rejection of claim 454 in view of Lavigne, Pfof, and Wang. Claim 452 includes the feature of "wherein the receptor comprises an enzyme" in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 454 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

The Office Action included a rejection of claim 455 in view of Lavigne, Pfof, and Wang. Claim 452 includes the feature of "wherein the receptor comprises a synthetic receptor" in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 455 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

The Office Action included a rejection of claim 456 in view of Lavigne, Pfof, and Wang. Claim 452 includes the feature of "wherein the receptor comprises an unnatural biopolymer" in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 456 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

The Office Action included a rejection of claim 457 in view of Lavigne, Pfof, and Wang. Claim 452 includes the feature of "wherein the receptor comprises an antibody" in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or suggest the features in claim 457 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

The Office Action included a rejection of claim 458 in view of Lavigne, Pfof, and Wang. Claim 452 includes the feature of "wherein the receptor comprises an antigen" in combination with the features of claim 413. Applicant respectfully submits that the cited art does not teach or

suggest the features in claim 458 in combination with the features of claim 413. Applicant respectfully requests removal of the rejection to the claims.

H. The Claims Are Patentable Over Lavigne In View of Pfof And In Further View Of Fernwood Pursuant to 35 U.S.C. § 103(a)

Claims 462-464 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lavigne in view of Pfof and in further view of U.S. Patent No. 4,493,815 to Fernwood et al. ("Fernwood"). Applicant respectfully disagrees that the claims are unpatentable over Lavigne in view of Pfof and in further view of Fernwood.

Claims 462-463 include a combination of features including, but not limited to, the features of "a filter coupled to the conduit and the sensor array, wherein the fluid passes through the filter before reaching the sensor array."

Applicant submits that it is not appropriate to combine Fernwood with Lavigne and Pfof. Whether or not "a particular combination might be 'obvious to try' is not a legitimate test of patentability." *Id.* at 1599, citing *In re Geiger*, 815 F.2d 868, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987) and *In re Goodwin*, 576 F.2d 375, 377, 198 USPQ 871, 881 (CCPA 1981). Consequently, it is not permissible for the Examiner to "use hindsight reconstruction to pick and chose among isolated disclosures in the prior art to deprecate the claimed invention." *Id.* at 1600. The teaching or suggesting to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not the applicant's disclosure. *In re Vaack*, 947 F.2d 488 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); MPEP 2143

Fernwood states "[t]he assembly is designated by number 1, its primary parts consisting of an upper template 2, a microporous membrane 3, a gasket 4, a lower template5 and a base plate 6." (Fernwood, column 2, line 67 – column 3, line 2). Fernwood describes a filtering assembly. Lavigne and Pfof do not appear to teach or suggest using a filter in combination with sensor array comprising a particle in a cavity. Fernwood does not appear to teach or suggest

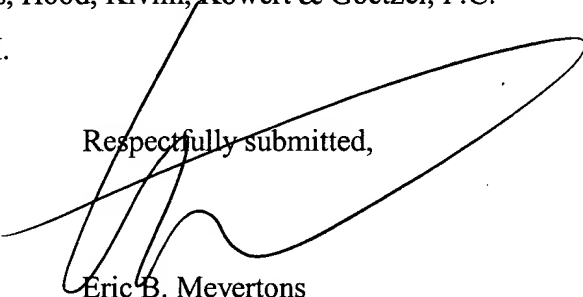
using a filter in combination with a sensor array comprising a particle in a cavity. Since there is no teaching or suggestion to combine a filter with a sensor array comprising a particle in a cavity in the cited art, it is not appropriate to combine Lavigne and Pfof with Fernwood. Applicant respectfully requests removal of the rejections to claims 462-464.

J. Additional Comments

Applicant submits that all claims are in condition for allowance. Favorable reconsideration is respectfully requested.

If any extension of time is required, Applicant hereby requests the appropriate extension of time. If any additional fees are required or if any fees have been overpaid, please appropriately charge or credit those fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account Number 50-1505/5936-00517/EBM.

Respectfully submitted,


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